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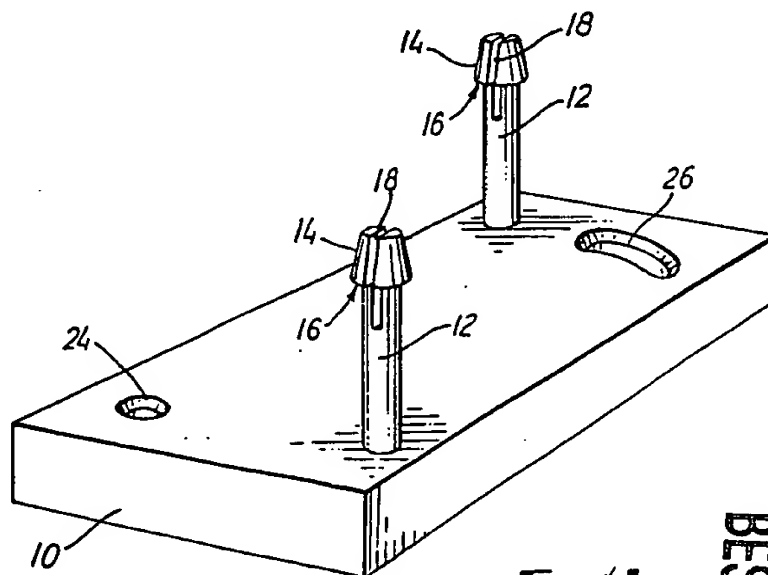
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(58) Field of search
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H1N
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(54) Holding devices

(57) A holding device for a micro-switch or the like having fixing passages therethrough, comprises a base 10 and columns 12 upstanding from the base and located for penetration of the passages in the micro-switch, snap engagement means 14 being provided at the free ends of the columns to retain the micro-switch on the device.



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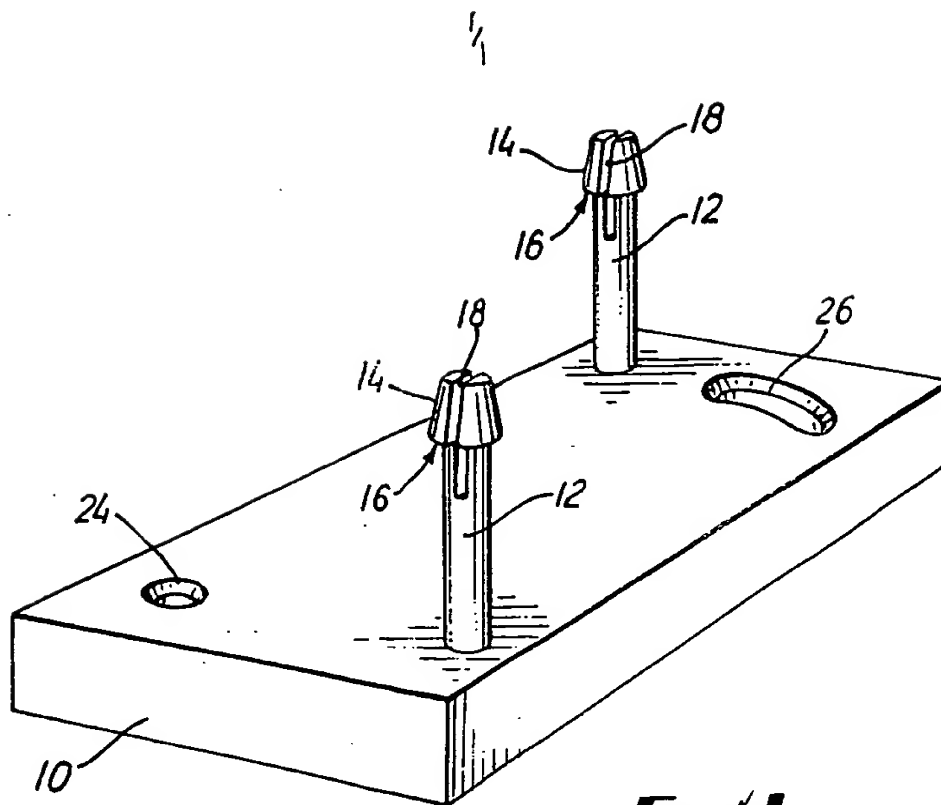


FIG. 1

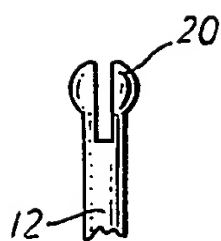


FIG. 2

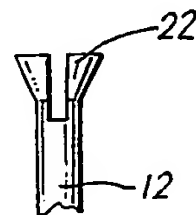


FIG. 3

SPECIFICATION

Improvements in or relating to holding devices

The present invention relates to improved holding devices. The invention relates particularly but not exclusively to holding devices for micro-switches, although it can be used to hold other components.

Micro-switches are generally supplied with standard sized cases having two diagonally opposed standard sized mounting passages. Threaded studs are passed through the mounting passages and threadably engaged in holes in a mounting board or plate. The micro-switches are clamped against the board or plate by nuts on the ends of the studs protruding beyond the micro-switch case.

It has been found that this is an unsatisfactory method of mounting as, mainly owing to the lateral loading on the micro-switch, the studs work loose from the base plate or the nuts work loose from the stud.

It is an object of the present invention to obviate or mitigate this disadvantage.

According to the present invention there is provided a holding device for a component having through passages therein, the device comprising a base and column members upstanding therefrom, the column members being positioned so as to coincide with mounting passages in said component and having snap engagement means at the free ends thereof, and dimension between a face on the snap engagement means facing the base and the base being substantially equal to the thickness of the component to be mounted.

Preferably the base, columns and snap engagement means are formed integrally from plastics material, for example by injection moulding.

Preferably the plastics material is nylon or acetal and may be reinforced with glass fibres.

Preferably the snap engagement means includes a frusto-conical enlargement at the end of the column, the enlargement having an under face substantially parallel to the base and at least one diametral slit such that it may be deformed to allow it and the column to be passed through and into the passage means of the component. The frusto-conical enlargement may be arranged with its base adjacent to or remote from the base of the device.

Alternatively the snap engagement means includes a spherical enlargement having a diametral slit.

Preferably adhesive is provided on the side of the base remote from the columns to facilitate the fixing of the device to a frame or the like. Any suitable adhesive may be used. Preferably an impact adhesive is pre-applied to the base and protected prior to use by a peel-off protective film.

To ensure that the component to be mounted is rigidly fixed it is preferable that the adhesive is non-flexible.

As an alternative to or in addition to adhesive on the base of the device fixing holes may be

provided through the base. At least one of said holes may be elongated, for example arcuate, to facilitate positioning the device.

The base of the device may include an upstanding flange provided with fixing holes and/or adhesive.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings, in which:

Fig. 1 shows a perspective diagrammatic view of a holding device for a micro-switch; and Figs. 2 and 3 show, in elevation, modifications of parts of the device.

A micro-switch (not shown) comprises a substantially rectangular case from which a contact arm and electrical connectors protrude, the casing being provided with two through passages arranged on a diagonal of the case.

The device shown in the drawing for holding the micro-switch is a glass reinforced nylon moulding comprising a rectangular base 10, the dimensions of which correspond with the dimensions of the case and two circular cross-section columns 12, each being formed integrally with the base with the minimum of fillet at the junction therebetween and being positioned to correspond with the mounting passages in the case.

Integrally formed at the top of each column is a snap engagement means 14 which is essentially a frusto-conical enlargement on the column end, the base of the frustum being arranged adjacent the base of the device and having a diameter greater than the diameter of the column such that a downwardly facing annular face 16 is provided parallel to the upper face of the base 10. A diametral slit 18 is cut through the frustum and the top of the column 12 in the direction of the longitudinal axis thereof such that the opposed portions of the remaining frustum can be deformed towards each other to allow passage of the frustum through the mounting passage in the case. On reaching the end of the passage the opposed portions return to their original position with the face 16 overlying the case portions surrounding the passages, thus preventing movement of the columns and frustum back through the passages.

To ensure that the micro-switch is positively mounted on the base the distance between the under face 16 of the frustum and the upper face of the base 10 corresponds substantially to the thickness of the micro-switch case.

Self adhesive means may be provided on the under face of the base member 10 such that the device with the micro-switch fitted thereon can be fixed in position on a mounting member. Any suitable adhesive may be chosen but it is preferable that the adhesive is such that the mounting of the base member on the frame is rigid. The adhesive may be of the impact variety and may be protected during storage and before application by a peel-off film (not shown). The adhesive may be flexible or rigid.

Various modifications can be made without departing from the scope of the invention, for example, the device need not be moulded integrally from plastics material but could be made

- 5 up from individual components. It could be manufactured from any suitable material, for example metal. Furthermore to provide a rigid base for the micro-switch the base member 10 may have a larger area than the micro-switch. The
- 10 snap engagement means at the top of the columns may be modified, for example two or more diametral slits may be provided, and the frusto-conical shape can be altered. Figs. 2 and 3 show two suitable modifications. Fig. 2 illustrates
- 15 a spherical snap engagement means 20 and Fig. 3 an inverted frustum 22. In these modifications the sloping faces of the engagement means facing the base of the device provide a downwards wedging action on the case of the switch.
- 20 A further modification is illustrated in Fig. 1. This shows countersunk fixing holes 24, 26 passing through the base. These holes may be provided instead of or in addition to the adhesive. The hole 26 is elongated, that is arcuate, to
- 25 provide for adjustment in the position of the device. Additional or alternatively positioned fixing holes may be provided and in another modification (not shown) the base 10 has a flange along one of its longer sides, the flange being provided with
- 30 fixing holes and/or adhesive so that the device may be fixed to a surface which is perpendicular to the surface to which the device shown in Fig. 1 is intended to be fixed.

CLAIMS

- 35 1. A holding device for a component having through passages therein, the device comprising a base and column members upstanding therefrom, the column members being positioned so as to coincide with mounting passages in said
- 40 component and having snap engagement means at the free ends thereof, the dimension between a face on the snap engagement means facing the base and the base being substantially equal to the thickness of the component to be mounted.
- 45 2. A device as claimed in claim 1, in which the base, columns and snap engagement means are formed integrally from plastics material, for example by injection moulding.

3. A device as claimed in claim 2, in which the

50 plastics material is nylon or acetal.

4. A device as claimed in claim 2 or claim 3, in which the plastics material is reinforced with glass fibres.

5. A device as claimed in any one of the

55 preceding claims, in which the snap engagement means includes a frusto-conical enlargement at the end of the column, the enlargement having an under face substantially parallel to the base and at least one diametral slit such that it may be

60 deformed to allow it and the column to be passed through and into the passage means of the component.

6. A device as claimed in claim 5, in which the frusto-conical enlargement is arranged with its

65 base adjacent to the base of the device.

7. A device as claimed in claim 5, in which the frusto-conical enlargement is arranged with its base remote from the base of the device.

8. A device as claimed in any one of the

70 preceding claims, in which the snap engagement means includes a spherical enlargement having a diametral slit.

9. A device as claimed in any one of the preceding claims, in which adhesive is provided on

75 the side of the base remote from the columns to facilitate the fixing of the device to a frame or the like.

10. A device as claimed in claim 9, in which an impact adhesive is pre-applied to the base and

80 protected prior to use by a peel-off protective film.

11. A device as claimed in any one of the preceding claims, in which fixing holes are provided in the base.

12. A device as claimed in claim 11, in which at

85 least one of the fixing holes is transversely elongate to facilitate adjusting the fixed position of the device.

13. A device as claimed in any one of the preceding claims, in which a flange is provided on

90 the base and has fixing holes and/or adhesive.

14. A holding device for a component, substantially as hereinbefore described with reference to Fig. 1 of the accompanying drawings or to Fig. 1 when modified in accordance with

95 Figs. 2 or 3.

15. Any novel subject matter or combination including novel subject matter herein disclosed, whether or not within the scope of or relating to the same invention as any of the preceding claims.